61. *On Some Simple Corals from the Neogene of Java.*

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The present material forms a part of Messrs. Y. Chitani and S. Watase's collection[1] of Javan fossils, which they made from various horizons of numerous localities in the Residencies of Bantam, Batavia and Buitenzorg, and kindly offered by Mr. Chitani for study to the Institute of Geology and Palaeontology, Tôhoku Imperial University, where it is now stored.

Cenozoic corals from the East Indies have occasionally been studied by P. M. Duncan, A. E. Reuss, K. Martin, J. Felix, H. Gerth, J. H. F. Umbgrove and others; those species recorded in earlier works, with their localities and geological formations are listed by Gerth in "Festbundel uitgegeven ter eere van Prof. Dr. K. Martin", 1931; of later publications, the important are;

Gerth, H., 1933, Neue Beiträge zur Kenntnis der Korallenfauna des Tertiärs von Java.
Umbgrove, R. F., 1938, Corals from an Elevated Marl of Talaud (East Indies).

The material now at hand comprises only six species of simple corals which are;

Family Turbinolidae	
Acanthocyathus cf. *spiniger* Kent	1 specimen
Heterocyathus aequicostatus M. Edw. & Haime	many specimens
Family Flabellidae	
Flabellum rubrum debile M. Edw. & Haime	1 specimen
Family Trochosmilidae	
Indosmilia bantamensis, nov.	1 specimen
Family Fungiidae	
Fungia patella bornensis Gerth (*Cycloseris* form)	1 specimen
Family Eupsammidae	
Balanophyllia cf. *complanata* Gerth	2 specimens

Acanthocyathus cf. *spiniger* Kent Figs. 1, 2.

Compare: *Acanthocyathus spiniger* Kent, 1871, On Some New and Little Known Species of Madrepores. Proc. Zool. Soc. London, 1871, p. 275, pl. XXIII, fig. 1.

Corallum subturbinate, lacking calicular part, 14 mm high, broadly oblong, (9 × 7 mm) in cross-section, base bluntly pointed. Costae stout,

1) Among the many fossils collected by Messrs. Chitani and Watase, already a report on the minute foraminfera has been published by H. Yabe and K. Asano "Contribution to the Palaeontology of the Tertiary Formations of West Java. Pt. 1, Minute Foraminifera from the Neogene of West Java," Sci. Rep., Tôhoku Imp. Univ., Ser. 2, Vol. XIV, No. 1, pp. 87–126, 1937.

The writers here wish to record their deep thanks to Messrs. Chitani and Watase for collecting the present material and especially to Mr. Chitani for kindly offering it to their Institute for study. They are also grateful to the Mitsui Mining Company, Tokyo, for a grant which allowed them to pursue the study of the Neogene fossils procured by Messrs. Chitani and Watase.

straight, becoming abruptly indistinct on basal one-third of corallum; those corresponding to septa of first cycle thick, prominent and bearing scars of spines, later ones being successively narrower and less prominent. Septa fairly thick, long, 24 in number, all meeting columella which is spongy, occupies about one-half of inner diameter of corallum and is surrounded by pali or pali-like expansions of inner margin of septa. Wall fairly thick.

If the calice were preserved, perhaps the septa of one more cycle could be seen in it. It is more slender than in *A. spiniger* Kent from the Japanese seas and has fewer septa, but has 6 stout, spiniferous costae in common with Kent's species. It also resembles *A. malayacus* Gerth[1] from the Upper Neogene to Pleistocene of the East Indies, but in this species the corallum is constantly curved. Probably identical with *A. spiniger*, but having no recent specimens of this species for comparison at hand, the specific identification of the fossil to this species is for a while suspended.

Locality: K. Tjisampi, Batavia (Chitani's Loc. No. 5802), Miocene (Chitani's Division IV); found together with *Balanophyllia* cf. *complanata*; Reg. No. 65247.

Heterocyathus aequicostatus M. Edwards & Haime Figs. 3, 4.

Heterocyathus aequicostatus M. Edwards & Haime, Yabe and Eguchi, 1941. Simple Corals from the Sumagui Formation, the Philippine Islands. This Proc., XVII (6).

This species is represented by many small specimens derived from different formations; in regard to the sculpture on the basal disc, two forms can be distinguished; one of them comprises relatively larger, well costated specimens, which are hardly distinguishable from *H. elberti* Felix as figured by Gerth[2] from the Rembang beds of Java, while another includes much smaller ones finely granulated on basal disc and agreeing well with *H. philippinensis* Semper[3] from the younger deposits of Mindanao, Philippines, though much smaller in size. These two species as well as several others are now included in the very variable *H. aequicostatus*, as already mentioned by the writers' in the preceding number of this Proceedings.

Localities: Bodjong, Bantam (Chitani, loc. no. 1, Upper Pliocene (Chitani's Division VI, Reg. No. 65251); Tjilegong, Bantam (Chitani, Loc. No. 848, Upper Pliocene (Chitani's Division VI, Reg. No. 65252); Maubaja, Buitenzorg (Chitani's Loc. No. 1226, Uppermost Miocene (Chitani's Division IV, Reg. No. 65235); Pasirlimoes, Buitenzorg (Chitani's loc. no. 369), Upper Miocene (Chitani's Division III, Reg. No. 65254), found together with *Fungia patella bornensis* Gerth; Reg. No. 65250.

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1) H. Gerth: Die Anthozoenfauna des Jungtertiärs von Borneo. Samml. d. Geol. R.-Mus., Leiden. Ser. 1, Bd. X, Heft 3, p. 57, Pl. 1, Figs. 20, 21. 1923.

2) H. Gerth: Anthozoa. Samml. d. Geol. R.-Mus., Leiden, N. F., 1, Abt. 2, p. 395, Pl. LVII, Figs. 12. 1921.

3) C. Semper: Über Generationswechsel bei Steinkorallen. Zeitschr. f. Wiss. Zool., Bd. XXII, p. 254, Pl. 20, Figs. 12–14. 1872.

Flabellum rubrum debile M. Edwards & Haime Figs. 5, 6.

Flabellum rubrum debile Milne Edwards & Haime, Yabe and Eguchi, 1941, Fossil and Recent *Flabellum* from Japan. Sci. Rep. Tôhoku Imp. Univ. Sendai, 11 ser. (Geol.) Vol. XXII, No. 2. (in press) (With synonyms.)

A single well preserved specimen coincides perfectly with *F. variable* described by Gerth[1] from the Pliocene of Bareng, Residency of Rembang, and D. Garoeng, Residency of Lamongan, both in Java; this is identical with *F. rubrum debile.* Similar specimens are very common in the Byôritu beds of Sintiku-syû, Taiwan.

Locality: Tjilegong, Bantam (Chitani's Loc. No. 848), Upper Pliocene (Chitani's Division VI), Reg. No. 65249.

Indosmilia bantamensis, nov. Figs. 7, 8, 9.

Corallum elongate, cylindro-conical, 65 mm high, nearly straight; oblong, (27 × 22 mm) in cross-section; calice not preserved. Wall very thin; costae straight, thin, relatively wide apart, distance being 2 mm in average; septa thin, long, 44 in number, nearly half of them meeting at center of corallum and others extending to near it, some of principal septa distinctly thicker than others and not visibly attenuated distally, septal faces apparently smooth; columella absent; dissepiments well developed, blassy, uniformly distributed in 4 or 5 layers subparallel to wall.

This fossil is close to *Indosmilia rembangensis* Gerth[2], the genotype from the Miocene of Java, though distinguished from it by having fewer septa and correspondingly distant costae. Another species, *I. sundaiana* (Gerth)[3] from the Pliocene of Java, which has first been erroneously assigned to *Conosmilia* also resembles the present one. The specimens at hand, though much larger and broader than in *I. sundaiana,* has nearly the same number of septa with it and is far richer in dissepiments. In certain respects, the present fossil occupies an intermediate position between *sundaiana* and *rembangensis;* by this the transference of *sundaiana* to the same genus with *rembangensis* seems to be justified; in *Indosmilia* the well developed columella of *Conosmilia* Duncan[4] are lacking.

Locality: Tyoö, Bantam (Chitani's Loc. No. 80), Miocene (Chitani's Division 11), Reg. No. 65246.

Fungia patella bornensis Gerth Figs. 10, 11, 12.

Fungia (*Cycloseris*) *patella* (Ell. u. Sol.) forma *bornensis fossilis* Gerth, 1923, Anthozoenfauna des Jungtertiärs von Borneo. Samml. d. Geol. R.-Mus., Leiden, Bd. X, Heft 3, p. 101, pl. 9, fig. 1.

A *Cycloseris* form in excellent preservation; this is quite identical with *Fungia patella bornensis* Gerth from the Upper Miocene? of Borneo.

1) H. Gerth: op. cit., p. 401, Pl. LVII, Fig. 30.

2) H. Gerth: Neue Beiträge zur Kenntnis der Korallenfauna des Tertiärs von Java. 1 Die Korallen des Eocaen und älteren Neogen. Wetenschappelijke Mededeelingen No. 25 p. 19, Pl. 11, Figs. 1,1 a-b. 1933.

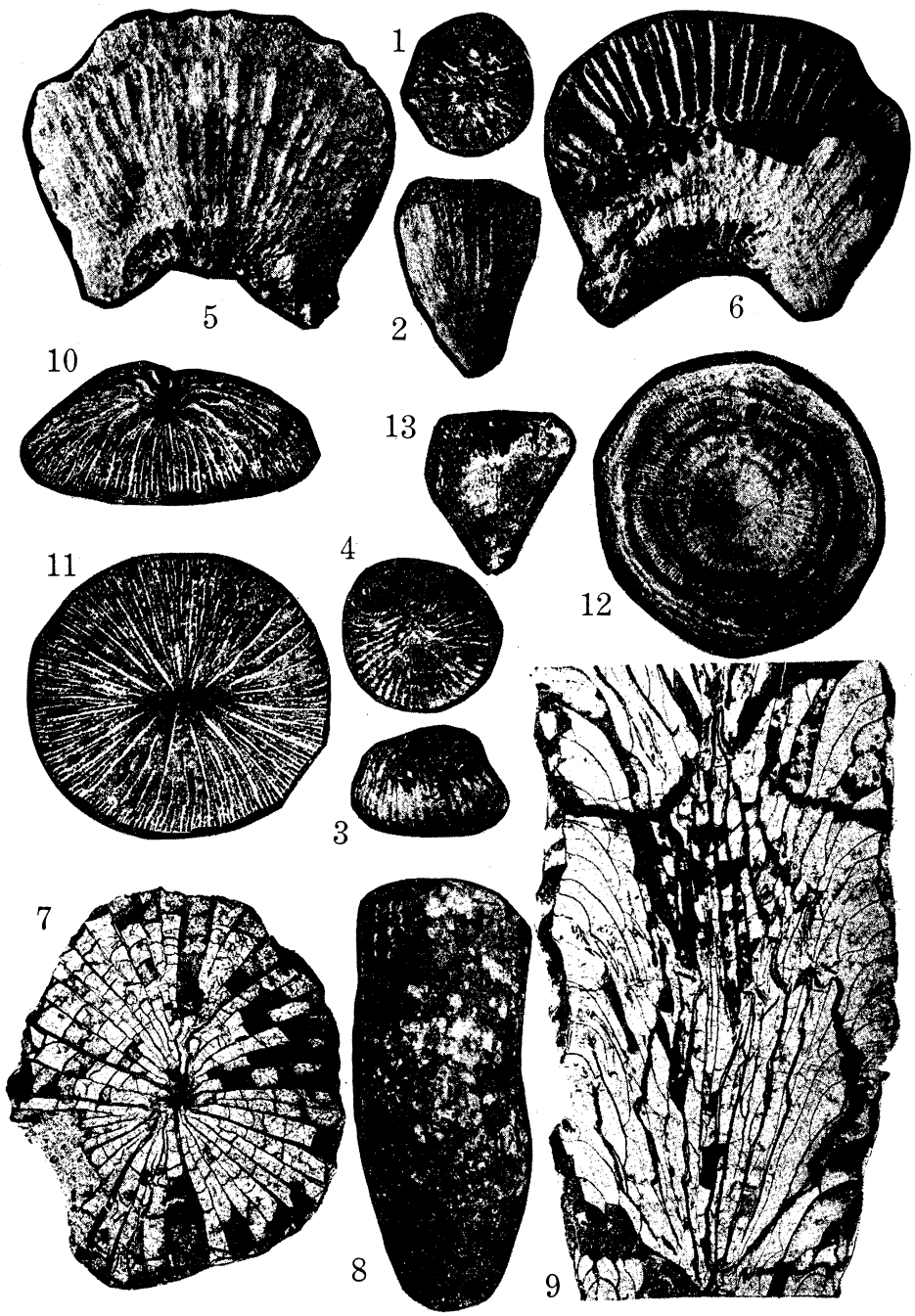
3) H. Gerth: op. cit., p. 403, Pl. LVII, Fig. 39, 1921.

4) P. M. Duncan: A Description of some Fossil Corals from the South Australian Tertiary. Ann. Mag. Nat. Hist., Ser. III, Vol. 16, p. 184, 1865.

Locality: Pasirlimoes, Buitenzorg (Chitani's Loc. No. 369), Upper Miocene (Chitani's Division III), Reg. No. 65250.

Balanophyllia cf. *complanata* Gerth Fig. 13.

Compare: *Banalophyllia complanata* Gerth, 1921, Anthozoa in K. Martin, Die Fossilien von Java. Samml. Geol. R.-Mus., Leiden, N. F., 1, Abt, 2, p. 427, pl. LVII, figs. 37, 38.



Corallum 22 and 21 mm high, rounded cuneiform, being laterally compressed and oblong or elliptical in cross-section, which is 20 × 6 mm in one and 17 × 6 mm in the other specimen; calice not preserved, base bluntly pointed; costae distinct, subequal, low, straight and occasionally slightly flexuous, bifurcating upwards, perforated in upper part of corallum; intercostal furrows perforated in a row throughout their length; septa thin, numerous, typically eupsammid in arrangement; principal septa somewhat thickened at proximal end; columella spongy, measuring 2.5 × 1.5 mm in larger specimen.

These specimens are characterized by being triangular in side view and in this respect they resemble *B. complanata* Gerth from the Younger Miocene of Java, from which, however, they differ by the smaller size and less lateral compression; moreover, they are nearly straight, or bent but slightly, if any, on the shorter diameter, while Gerth's material somewhat curves on the opposite direction. Among the European Tertiary forms, *B. gravesii* Michelin approaches the present specimens most closely, but it is less expanded or flabellate. To establish a new species or subspecies, the present material is too scanty.

Locality: K. Tjisampi, Batavia (Chitani's Loc. No. 580), Uppermost Miocene (Chitani's Division IV), Reg. No. 65248.

Explanation of Figures.

Figs. 1, 2, *Acanthocyathus* cf. *spiniger* Kent, Reg. No. 65247.
1, calicular view; 2, lateral view. ×2.

Figs. 3, 4, *Heterocyathus aequicostatus* Milne Edwards & Haime, Reg. No. 65254.
3, lateral view; 4, basal view. ×2.

Figs. 5, 6, *Flabellum rubrum debile* Milne Edwards & Haime, Reg. No. 65249.
Facial views. ×2.

Figs. 7, 8, 9, *Indosmilia bantamensis* Yabe & Eguchi, nov. Reg. No. 65246.
7, cross section ×2; 8, lateral view, nat. size.; 9, longitudinal section. ×3.

Figs. 10, 11, 12, *Fungia patella bornensis* Gerth, Reg. No. 65250.
10, lateral view; 11, calicular view; 12, basal view. Nat. size.

Fig. 13, *Balanophyllia* cf. *complanata* Gerth, Reg. No. 65248.
Lateral view. Nat. size.